



**ABOVE** • HHS Secretary Sylvia Burwell visited NIH to welcome a high-ranking delegation from China. See story on p. 12.

## features

**E-Cigarettes Target Kids as Industry Tries to Renormalize Smoking**

1

**Rwandan Minister To Give Barmes Lecture, July 29**

3

**NIH's IT Upgrades Speed Data Transfer**

5

**Chinese Delegation Visits Campus**

12

## departments

Briefs	2
Volunteers	9
Milestones	10
Seen	12

# nih record

## E-Cigarettes: Are Advocates Just Blowing Smoke?

By Dana Talesnik

Debates are heating up about electronic cigarettes. Proponents claim these “e-cigs” are less toxic, offer a safer alternative to smoking conventional cigarettes and may even help longtime smokers kick their habit altogether. But their utility and safety remain clouded in controversy. Are e-cigs really any safer for people and the environment?

E-cigarettes are battery-operated devices that heat a chemical solution and produce an aerosol. There are many different kinds—disposable, rechargeable, refillable, larger vapor pens that burn much hotter—many of which contain nicotine, formaldehyde and other carcinogens. The vapor of chemicals gets inhaled then released into the air.

The aerosol from e-cigs contains ultra-fine particles—more and tinier particles than cigarettes—that penetrate the body and can pose a health risk. “These particles trigger inflammatory processes...they go very deep into your lungs; they go right

SEE **E-CIGS**, PAGE 6



Dr. Stanton Glantz of UCSF speaks at NIH.

### Ebola Update

## Ebola Rates Decline in West Africa, But Further Study, Vigilance Remain Urgent

By Dana Talesnik

Two days before the World Health Organization would declare Liberia Ebola-free—after 42 days with no new cases—NIAID and a Liberian doctor reflected on their collaborative work to contain the deadly virus and described ongoing clinical research efforts in Liberia and surrounding West African countries.

“Last year, around June, we were in a frantic mode,” recounted Dr. Mark Kieh, principal investigator for Ebola vaccine trials at Redemption Hospital in Monrovia, Liberia,



Dr. Mark Kieh

SEE **EBOLA**, PAGE 8

### ‘Medical GPS’

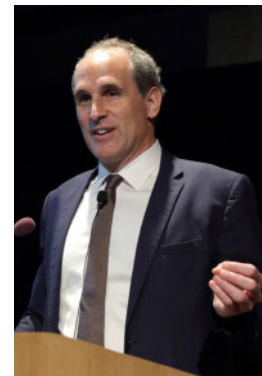
## Image-Guided Therapy Helps Surgeons See Procedures

By Eric Bock

“At times I go through the day and I feel like I’m playing video games.” That’s how Dr. Bradford Wood described his work developing image-guided therapies at a recent Contemporary Clinical Medicine: Great Teachers Grand Rounds held in Lipsett Amphitheater.

Essentially, Wood and his colleagues develop and refine image-guided procedures to deliver cancer drugs, “cook” cancer with needles and improve cancer detection.

“We can use imaging while we’re treating the



Dr. Bradford Wood

SEE **WOOD**, PAGE 4



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NIH...Turning Discovery Into Health

## briefs



### NIH Gets a Taste of the Caribbean

*At the 8th annual Taste of the Caribbean on June 25, representatives from local restaurants, including Caribbean Gardens Restaurant and Carry-Out and Chez Yiamme Catering, served up favorites such as jerk chicken, red beans, rice and plantains for NIH'ers on the Bldg. 31A patio. The lunch was sponsored by the Caribbean Association at NIH and the R&W Association, in partnership with the Caribbean American Chamber of Commerce of the Greater Washington Area Network and Reginald F. Lewis Museum of Maryland African-American History and Culture. Patrons enjoyed the music of the islands as well as the food.*

PHOTOS: ERIC BOCK



*CC director Dr. John Gallin (l) and DTM chief Dr. Harvey Klein cut the ribbon to open the NIH Donor Center at Fishers Lane.*

### Donor Center Opens in Rockville

The Clinical Center's department of transfusion medicine celebrated the grand opening of the NIH Donor Center at Fishers Lane with a ribbon-cutting ceremony on June 19.

The new center will handle all platelet donations for the NIH Blood Bank. Platelets are tiny blood cells that are produced in bone marrow. Without them, blood can't clot. The new center will also collect granulocytes, a type of white blood cell. Each week, 80 donors are needed to supply CC patients who need life-sustaining platelets.

If you would like to donate platelets or granulocytes, call the center at (301) 496-4321 to schedule an appointment.



*An employee checks out the center's new location at 5625 Fishers Lane in Rockville. There are 5 stations for platelet and granulocyte donation at the center.*

PHOTOS: BILL BRANSON

### Asthma Study Is Recruiting

Do you have asthma? NHLBI is seeking volunteers with asthma for a study. Two outpatient visits and one inpatient stay at the Clinical Center are required. Compensation may be provided. For more information, contact the Office of Patient Recruitment, 1-866-444-2214 (TTY 1-866-411-1010). Refer to study 99-H-0076.

nih record



## Rwandan Minister To Give Barmes Global Health Lecture, July 29

Rwandan minister of health Dr. Agnes Binagwaho, a strong supporter of biomedical research, has been invited to deliver the annual David E. Barmes Global Health Lecture. Her presentation, titled “Medical Research and Capacity Building for Development: The Experience of Rwanda,” is scheduled for Wednesday, July 29 at 11:30 a.m. in Masur Auditorium, Bldg. 10.



Dr. Agnes Binagwaho

PHOTO: STEPHANIE NOVAK

Binagwaho has spoken frequently about the value of research and capacity building at her country's medical and academic institutions in helping relieve the disease burden that weighs on Rwanda and other low- and middle-income populations. Before becoming minister in 2011, she had served as permanent secretary of health, as executive secretary of Rwanda's National AIDS Control Commission and as a physician in public hospitals for more than 15 years. She trained in pediatrics, specialized in emergency neonatology and the treatment of HIV/AIDS and earned her doctoral degree from the University of Rwanda in 2014. She holds positions at Harvard University and Dartmouth College, where she teaches courses in health equity, HIV/AIDS, information and communication technologies for health and pediatric care delivery systems.

NIH supports a range of research and training collaborations with Rwandan scientists, such as clinical trials of an HIV vaccine, development of research skills to study cervical and other cancers and investigations of how intimate partner violence affects health.

The event honors the late Dr. David Barmes, a public health dentist and epidemiologist, for his career spent improving health in low- and middle-income countries. The talk is co-sponsored by the National Institute of Dental and Craniofacial Research and the Fogarty International Center and will be webcast live and archived for future viewing.

More information is available at [www.bit.ly/Barmes2015](http://www.bit.ly/Barmes2015).



On hand at the PRAT symposium were (seated, from l) Megan Wyeth, Nadine Samara, Carrie Lucas. Standing are (from l) Katrina Kelner, Chad Brocker, Evgeny Kiselev, Leslie Leinwand, Jessica Faupel-Badger.

PHOTO: BILL BRANSON

## PRAT Fellows Showcase Scientific Diversity

Postdoctoral fellows, their mentors and other intramural and extramural scientists filled balcony A in the Natcher Bldg. on June 10 for the 47th annual NIGMS Postdoctoral Research Associate (PRAT) program symposium. The event featured remarks about issues in scientific publishing from *Science Translational Medicine* editor—and PRAT alumna—Dr. Katrina Kelner, a research talk by Dr. Leslie Leinwand of the University of Colorado and presentations by the program's five third-year fellows.

When NIGMS established the program in 1965, the letter P in PRAT stood for “pharmacology,” but in 2012 it was changed to “postdoctoral” to reflect the broadening of the scientific areas that the program supports.

As the first cohort of fellows that entered under the new name, the “graduating” class of 2015 is representative of the expanding scope of the program. The fellows worked in five different NIH institutes in the fields of chemistry, neurobiology, immunology, molecular biophysics and molecular toxicology.

“The PRAT program brings together fellows from a diverse array of scientific disciplines to learn from each other,” said program director Dr. Jessica Faupel-Badger. “It's truly a multi-disciplinary activity.”

The program aims to give postdoctoral fellows networking and career development opportunities in addition to formal research training.

“The focus of PRAT is on our growth beyond the bench through mentorship, leadership and professional development,” said Dr. Nadine Samara, a third-year PRAT fellow and one of the event's speakers. “This kind of support is essential since research careers are often marked by a series of failures and very few, but highly rewarding, successes.”

The PRAT program is currently accepting applications for the next class of fellows. The due date for applications is Oct. 2.—Ruchi Shah

## WOOD

CONTINUED FROM PAGE 1



Wood (l) was introduced by Dr. Melinda Merchant, clinical director of NCI's Pediatric Oncology Branch. She said Wood "excels in using biomedical engineering to solve real-life clinical problems."

PHOTOS: ERNIE BRANSON

patient," said Wood, director of NIH's Center for Interventional Oncology and chief of the interventional radiology section in the Clinical Center's radiology and imaging sciences department.

He compared image-guidance during surgery to the beams of a car's headlights—both allow someone to maneuver in dark places. Recently, he said, a patient came to the Clinical Center with a tumor on his spinal column. A PET scan pinpointed the tumor's location and Wood's team then transposed the resulting image on top of an X-ray image of the patient's bones.

The procedure to kill the tumor was done through a small needle-hole (minimally invasive and guided by images, but not surgery). During the procedure, Wood's team brought the image to the patient and consulted that image to map out and refine the plan for treatment. When they began operating, they tracked their progress with fusion, which can be done with a rotating X-ray or with an ultrasound-guided "smart" needle that reports its location in real-time in relation to the prior images, taken pre-procedurally. The system is sometimes referred to as a "medical GPS."

Relying on the image to guide them, the team navigated around blood vessels and nerves to deliver energy that kills tumor cells by heating them up.

"I felt like I was using skills learned in video games," said Wood.

He said his team's translational research is focused on helping patients. They define a clinical problem and work backward.

As an example of this approach, he cited the development of imaged-guided prostate biopsies at the CC and NCI. Over the past 10 years, Wood has worked with urologists, MRI radiologists, oncologists and engineers to develop methods that accurately detect and locate prostate cancer. His team developed a software program that allows an MRI image to be transposed on top of an ultrasound image. This provides a detailed image of the whole prostate.

He said the fused image is then used as a map to guide a needle during biopsy, which would otherwise be blind.

Doctors can then recommend the best treatment option, based on biopsy results. If a tumor is aggressive, the prostate can be removed. If it

remains non-aggressive, doctors can periodically monitor the tumor, or even propose focal thermal ablation (cooking tumors). Wood said the technique has allowed doctors to identify more aggressive cancers earlier, so they can be treated before they cause problems.

One of his current projects involves development of small drug-loaded beads that are imageable and delivered by catheters via the bloodstream. The drug location can be imaged, as can the tumor, so that the operator can fuse these images to see where drug is, and where drug is not, in order to better treat the tumor. "We can actually see the beads on X-ray while we're doing the treatment," he said. "We're actually deciding based on that where to place the needle."

So far in 2015, Wood has co-authored collaborative material in *Science*, *The Lancet* and *JAMA*, all due to multi-disciplinary team science. "A lot of the true team-oriented people are critical for the success of the machine, but don't often get credit for what they do," said Wood. "It's these people who really make this great place hum, and that includes fellows, administration, scientists, students, police, maintenance and the coffee shop." 🍵



## NIDA's Wetherington Receives Award

The National Institute on Drug Abuse's Dr. Cora Lee Wetherington (c) has received the 2015 Martin and Toby Adler Distinguished Service Award from the College on Problems of Drug Dependence for her outstanding contributions. The award was presented at CPDD's 77th annual meeting held in Phoenix recently. Wetherington has been with NIDA since 1987, and serves as chair of the women and sex/gender differences group and as NIDA's representative to NIH's coordinating committee of the Office of Research on Women's Health. Her work is aimed at infusing and advancing the study of women and sex/gender differences into all areas of drug abuse research, both clinical and preclinical. Presenting the award are CPDD executive officer Dr. Martin Adler and executive officer-elect Dr. Loretta Finnegan.



*Got Speed?*

## Network Upgrade Improves Scientific Data File Transfers

By Erin O'Leary

*(This is the third of a multi-part series exploring how technology enables NIH's mission.)*

The average person may not appreciate just how much data a single molecule produces. Dr. Keir Neuman certainly does.

As a principal investigator for NHLBI's Laboratory of Single Molecule Biophysics, Neuman and his team use innovative single molecule manipulation and imaging tools to conduct their work. Because of their research, for the first time, we are able to see how individual matrix metalloproteinases degrade heterogeneous collagen fibers in their natural state. By providing an intimate view of this physiological process, critically important basic research is leading the way to a better understanding of diseases such as atherosclerosis and cancer.

From his lab in Bldg. 50, Neuman uses a high-powered microscope and a high-resolution camera to capture a linked series of image files or videos. These video files are not your average Netflix home movies. Understanding the dynamic movements of individual enzymes requires scientists to capture 100 frames per second, or more than three times that of the high definition television in your home.

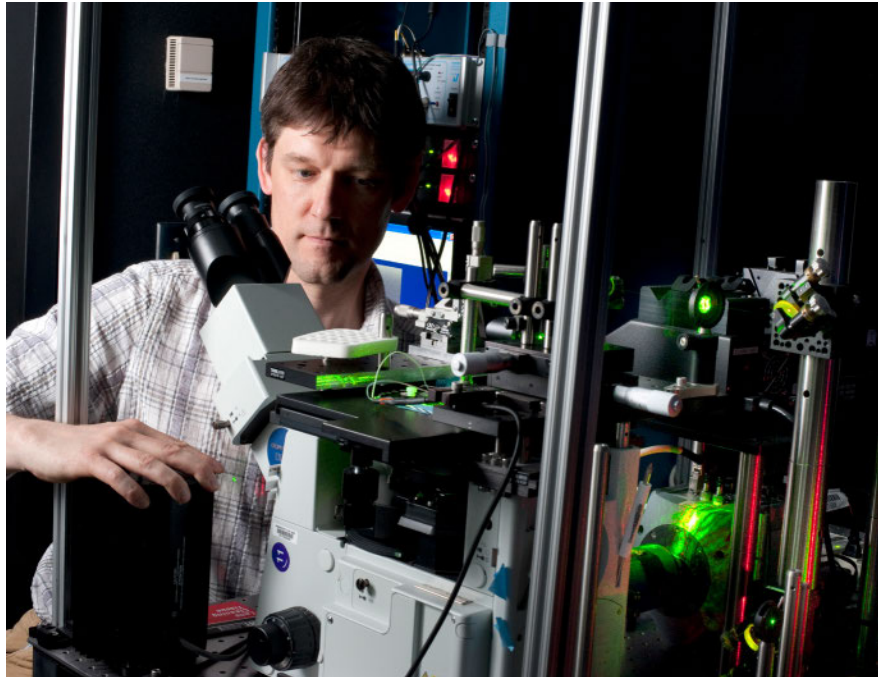
Neuman estimates about 60 GB of data in the form of video files are produced in a single day of experiments. After these videos are captured, the data files are transferred to a shared storage environment located in Bldg. 12. These data files are later accessed by his research team for analysis.

Before last September, transferring this data on the NIH network was no small feat.

"Compressing our files for upload is not an option, like it might be for pictures on your digital camera," said Neuman, referring to his team's dependence on reviewing raw image files. "On average, we would spend about 8 hours transmitting data across the network, pulling it up and down from storage."

In 2013, NIH approved funding to improve the speed, reliability and security of the NIH network. Working in conjunction with the scientific community to understand technology expectations and future needs, the Center for Information Technology proposed a multi-year plan to deliver a modernized network by 2017.

In 2014, the first key piece of infrastructure,

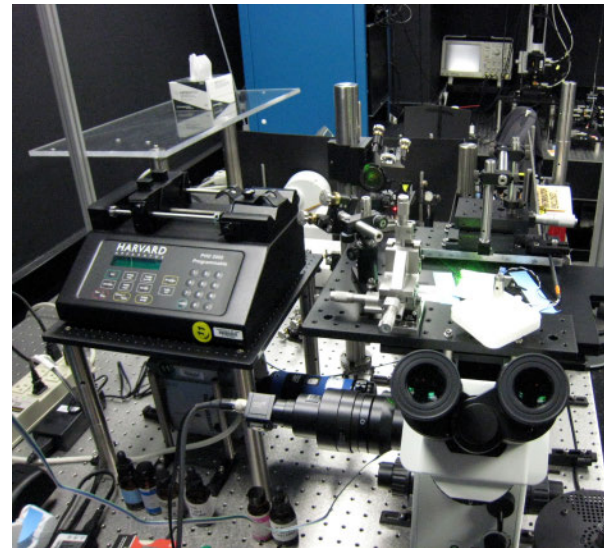


**Above:**

*As a principal investigator for NHLBI's Laboratory of Single Molecule Biophysics, Dr. Keir Neuman uses innovative single molecule manipulation and imaging tools.*

**Right:**

*From his lab in Bldg. 50 Neuman uses a high-powered microscope and a high-resolution camera to capture a linked series of image files or videos.*



or the NIH network core, was upgraded to accommodate 10 times its capacity. According to Andrea Norris, CIT director and NIH chief information officer, the continued focus is to upgrade the connections between the NIH network core and key research facilities where at-capacity or under-performing network connections were inhibiting research.

Neuman says he and his team are seeing results: "What used to take 8 hours to transmit now takes 2 hours. It really changes the way you think about things. Data is easier to upload, easier to download and, ultimately, easier to analyze."

In addition to facilitating today's data transfer requirements, the NIH network's capacity to support newer technologies in the future pleases Neuman.

"Newer cameras, in comparison to the first-generation camera we use, are about 10 times faster," he said. "As tools and applications advance, more and more data will be produced, transferred and stored. This network configuration will be better equipped to accommodate the demand." 📺

## E-CIGS

CONTINUED FROM PAGE 1



*Of e-cigarette use, Glantz noted, "I think bathing your gums in a hot propylene glycol aerosol of nicotine and heavy metals is probably not good for you."*

PHOTOS: RICH MCMANUS

across the alveoli into your bloodstream and they're carrying all of these chemicals with them," said Dr. Stanton Glantz, a distinguished professor at the University of California, San Francisco, School of Medicine.

He spoke at a recent NIDCR Clinical Research Fellowship Grand Rounds at Porter Neuroscience Research Center, just as the institute was announcing a call for research applications on the oral effects of e-cigs. Admittedly not an expert on dental health, Glantz said, "I think bathing your gums in a hot propylene glycol aerosol of nicotine and heavy metals is probably not good for you." He lauded the RFAs to study the oral health impact, one of many areas in which more research on e-cigs is needed.

"In the current regulatory environment, the main danger of e-cigarettes is that they keep people smoking cigarettes," said Glantz. While some people may successfully quit smoking with the help of e-cigs, he said, those people are in the minority. "[Among all smokers], e-cigarettes are not only not helping people quit, they're actually inhibiting quitting."

Multiple studies have shown that, overall, people who use e-cigs are about one-third less likely to quit smoking, said Glantz. Many smokers who use e-cigs to try to quit smoking wind up dual users, alternating between e-cigs and cigarettes. Contributing to this dual-use effect, e-cigs are not yet prohibited in many smoke-free areas, although this situation is changing, particularly through local government action.

"Smoke-free environments are a powerful motivator and assist in quitting smoking," said Glantz. "If you have an alternative nicotine device that you can use in places where you can't smoke cigarettes," that makes it even harder to quit. For people trying to quit smoking, he added, "you're better off using FDA-approved medicines and counseling."

Another factor inhibiting quitting, said Glantz, is the deceptive advertising and marketing. Much as early cigarette ads made smoking look trendy, glamorous and cool, e-cigarette ads tout similar messages, emphasizing e-cigs as a healthier choice while giving the impression it's once again socially acceptable to smoke. After all of the progress made by smoking ad restrictions and clean air laws, Glantz said, e-cigs may have the harmful effect of renormalizing tobacco use. That was why his talk was sub-titled, "Back to the Future."

E-cigarette sales started out as a small, niche market in specialty shops. But as the major cigarette companies have entered the business, e-cigs are now mass marketed, sold in gas stations and convenience stores, often next to candy or medicines. Almost all e-cigs are flavored, which contributes to their wide appeal with kids.

In fact, e-cig use has dramatically risen among children and young adults and is associated with the progression to established smoking. In one recent cross-sectional study using National Youth Tobacco Survey data, said Glantz, kids who experimented with cigarettes (smoking at least one puff) and who also used e-cigs were almost 8 times more likely to become conventional smokers than kids who never tried e-cigs.

"Nicotine, despite what the cigarette companies say, is not like caffeine. It's a neurotoxin; it changes your brain and your nervous system," said Glantz. "And it's very well established that the younger kids are when they start using nicotine, the more heavily addicted they get, the longer they use and the harder time they have quitting."

E-cigarette advocates often focus on the lower cancer toxicity profile, but epidemiological studies show the duration and amount smoked may be just as much a factor as the intensity. "If that turns out to be the case, the fact that levels of carcinogens are lower may be less important," said Glantz.

Studies show that most smokers are killed not by cancer but by heart disease and non-cancer lung disease, said Glantz, who has done extensive research on the cardiovascular effects of tobacco. "E-cigarettes do deliver fewer carcinogens than conventional cigarettes, but they have a toxicological profile which I think is going to be very high risk for cardiopulmonary disease."

There's also the issue of secondhand smoke. E-cigs don't smolder like cigarettes, but they do release ultrafine particles, nicotine and other toxins that pollute the surrounding air and are absorbed by bystanders.

One argument for e-cigarettes and harm reduction in general has been that there are hard-core tobacco smokers who cannot quit or refuse to even try. But U.S. surveys over the last 18 years show that smoking prevalence and consumption are declining while quitting is on the rise, which shows softening, not hardening, of the remaining smoking population. Said Glantz, "The tobacco control strategies we've been using—clean indoor air laws, strong media, increased taxes, restrictions on sales—are working and we're pushing the population down that curve. I think that's what we should just keep doing." ●



## Trailblazers in Biomedical Technology Development Meet

More than 130 scientists and engineers convened in Rockville recently for the annual Biomedical Technology Research Centers Principal Investigator Meeting. The attendees were lead researchers at NIH-funded national resource centers, which create and disseminate unique technologies and methods at the forefront of a wide variety of fields from tissue engineering and biomedical imaging to computer science and artificial intelligence.

In addition to being powerhouses of innovation, the 56 centers—funded by the National Institute of Biomedical Imaging and Bioengineering and the National Institute of General Medical Sciences—have a large impact on the biomedical research community by seeking out intensive collaborations with and serving as a resource to other laboratories across the country. Each year, nearly 7,000 biomedical researchers use technologies developed at the centers or are involved in these collaborative efforts.

“These centers are run by researchers at the top of their fields who are committed to accelerating progress in biomedical research through the development and dissemination of enabling technologies,” said Dr. Richard Conroy, who currently oversees the center grants at NIBIB.

Last year, NIBIB funded two new centers: the Center for Advanced Imaging Innovation (CAI<sup>2</sup>R) and Research, directed by Dr. Daniel Sodickson, and the National Center for Adaptive Neurotechnologies, directed by Dr. Jonathan Wolpaw.

A primary goal of technology development at CAI<sup>2</sup>R is to reduce the duration of medical scans such as MRI. One reason MRI scans take so long is that technicians have to run multiple imaging programs during a scan based on the different types of images that a doctor orders. These programs often require the technician to stop the scanner to adjust the equipment or administer contrast dye to a patient; all of this switching keeps patients in scanners longer.

At CAI<sup>2</sup>R, engineers, physicians and industry partners are working together to develop technologies that enable rapid, continuous imaging with enough flexibility and comprehensiveness that doctors can choose the type of images they want to acquire after the scan is done.

“Long scan times are a burden to patients, doctors and technicians and they are costly to hospitals,” said Conroy. “The ability to reduce MRI scan durations would be extremely beneficial.”

At the National Center for Adaptive Neurotechnologies, Wolpaw and his team are developing



*NIBIB director Dr. Roderic Pettigrew (c) with BTRC directors Dr. Daniel Sodickson (l) and Dr. Jonathan Wolpaw*

new technologies and methods that allow individuals to interact with the nervous system in real-time using brain-computer interfaces (BCI). Such technologies will increase our understanding of how the nervous system functions, enable us to guide beneficial plasticity of the nervous system to restore capabilities following injury or disease and lead to the development of effective new therapies for a wide range of devastating neurological disorders.

“This is the first NIBIB resource center to provide the latest state-of-the-art technology and analysis methods for translating BCI research into widespread use by the research and clinical community,” said Conroy. “The new center is poised to have a tremendous impact, not only in accelerating rehabilitation engineering research, but also on individual patient lives.”

More information about all the centers and resources they offer can be found at [www.btrportal.org](http://www.btrportal.org).—Margot Kern

## NINR Partners with NLN to Host Research Roundtable

The National Institute of Nursing Research and the National League for Nursing recently co-hosted the 2015 National Nursing Research Roundtable. Since 1987, the annual event has brought together leaders of nursing organizations with a significant research mission from across the country to discuss priorities in science, practice and policy. The focus of this year’s gathering was “The Nexus of Research, Education and Practice for the Health of the Nation,” which provided an opportunity to discuss health care transitions and the policy and practice implications of these transitions as a critical aspect of health care.

“Studies of transitional care have shown promise in both improving health outcomes and reducing costs,” said NINR director Dr. Patricia Grady during opening remarks. “Nurse scientists have pioneered research in this area, as well as taken the lead in implementing transitional care strategies—a true integration of research and clinical practice.”

The keynote address was delivered by Dr. Eileen Sullivan-Marx, dean of the College of Nursing at New York University. Her talk emphasized the need to teach competencies in research at all levels of education, make research careers exciting and use more case-based learning in the research curriculum. She also highlighted the importance of tying nursing and nursing outcomes to data, informatics and health care financing.

## EBOLA

CONTINUED FROM PAGE 1



*Dr. Clifford Lane said Liberians proved wrong any assumptions that nobody would volunteer or return for follow-up visits. In fact, there was an astounding 99 percent attendance rate. "I wish we could enroll our patients in our studies in the U.S. with this degree of engagement."*

PHOTOS: ERNIE BRANSON

speaking at a recent seminar in Masur Auditorium. "Liberians were afraid, like anyone else in Guinea and Sierra Leone. We saw the surge, then a plateau, then a surge until October and then we gradually began to see a decline."

The 14-month Ebola epidemic in Liberia killed nearly 4,700 people and infected thousands more, including hundreds of health care workers, 192 of whom died. More than 11,000 people have died from Ebola across West Africa.

With the outbreak currently under control in Liberia, research priorities there are shifting toward prevention and a survivors study, said Dr. Clifford Lane, deputy director, NIAID. Meanwhile, treatment studies continue in neighboring Sierra Leone and Guinea, where Ebola is declining but still active.

### Drug, Vaccine Trials

Over the past year, as Ebola engulfed Liberia, NIH partnered with the Liberian Ministry of Health to develop and test Ebola therapies and vaccines. Early on, NIAID began testing the antibody cocktail ZMapp on infected patients in Liberia and, in March, launched a randomized controlled trial to test its safety and efficacy.

"The irony was that as the study was approved in Liberia, there really were no more cases, so the bulk of enrollment has been in Sierra Leone," said Lane.

In the ZMapp trials, all patients receive fluids, electrolytes and other supportive care. Approximately half are randomized to receive ZMapp, said Lane. "The randomization is to the local standard of care or that standard of care plus ZMapp." In Sierra Leone, supportive care for advanced cases sometimes includes mechanical ventilation or renal replacement therapy.

NIAID also teamed up with Redemption Hospital to test vaccines. The PREVAIL study (Partnership for Research on Ebola Vaccines in Liberia) has enrolled 1,500 volunteers, randomized to receive 1 of 2 candidate Ebola vaccines or a saline placebo. Kieh said most volunteers exhibited no major side effects.

Monitoring will continue in all three countries, said Lane, and a phase 3 efficacy trial is planned for Guinea. In Liberia, plans are under way to launch an observational survivor study, PREVAIL-3. As part of this phase, NEI is helping establish an eye clinic in Monrovia to study

and treat the serious eye problems suffered by a sizeable number of Ebola survivors.

Many NIH doctors, nurses, lab technicians, pharmacists and others across multiple ICs have been instrumental in launching and monitoring this clinical research. Lane and Kieh expressed gratitude to the many who have devoted countless hours toward fighting Ebola.

### Liberia: A Community United

Working to combat Ebola in Liberia involved the tireless dedication of lab teams and health care workers collaborating in close confines, but also an engaged local population. The same community-based model used to control the Ebola outbreak also proved effective in following patients through the vaccine studies, said Lane.

When NIAID's vaccine trial began in February, few volunteers came forward. A Redemption Hospital worker hit the streets to recruit volunteers and a group of street boys became the first to be inoculated, recounted Kieh. Then so many volunteers came forward that the hospital had to schedule people up to 2 months out.

"It's all been a community effort: going out there, identifying the cases and using contact trackers who were able to get the community to understand the disease, trust the health workers—that we're here not to take their loved ones away but to teach them the right thing to do," said Kieh. Now, he said, Liberians are more cautious to prevent the spread of infection; now they don't hug or shake hands but greet each other by tapping elbows.

Community leaders chose these trackers to recruit and retain volunteers. "Our culture is somewhat paternal, where everybody listens to the leaders...and trusts them," said Kieh. "These trackers are our foot soldiers, the guys going out into the community to see those participants face to face, make them feel we care about them, make sure they come to their scheduled visits and make sure they [follow up with] their physicians."

Liberians proved wrong any assumptions that nobody would volunteer or return for follow-up visits. In fact, there was an astounding 99 percent attendance rate, said Lane. "I wish we could enroll our patients in our studies in the U.S. with this degree of engagement, with this degree of information exchange, this degree of commitment on all parts of both the investigators and the volunteers." Community support was a huge motivating force, he added.



"The 2014 Ebola outbreak in West Africa was the largest in history and placed unprecedented burdens on our health care system and workers," said Kieh. "It also taught us we had a broken down health system." Liberians now are trying to rebuild and improve health care while continuing efforts to prevent future infectious outbreaks. "At Redemption, we're so motivated to work hard to be part of this process."

Although Ebola is coming under control across West Africa, the clinical research is far from done. Said Lane, "We're committed to working long term in the region." 📍



### Study Seeks Healthy Older Adults

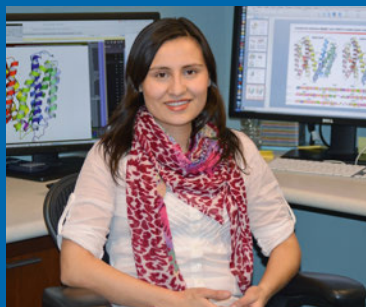
Healthy older adults ages 55-75 are invited to participate in an outpatient research study investigating the benefits of omega-3 oil and blackcurrant supplements on vascular health. The goal of the study is to determine whether the supplements improve blood flow and blood vessel function that can affect your heart. Eligible participants must be medication-free and in good general health. The study will be carried out in an outpatient clinic and includes 4 visits over 6 months. Compensation is provided. For more information call 1-800-411-1222 (TTY 1-866-411-1010) and refer to study 14-NR-0034.

### Heart Disease Study Recruits Cancer Patients

Have you been treated for HER-2 positive breast cancer? NHLBI researchers want to learn more about the risks of developing heart disease in women who have received treatment for breast cancer. Requires one study visit to the Clinical Center. Compensation is provided. For more information call the Office of Patient Recruitment, 1-866-444-2214 (TTY 1-866-411-1010). Read about the study at [clinicaltrials.gov](http://clinicaltrials.gov). Refer to 10-H-0126.

### Study of Taste Needs Adults

NIDCD seeks healthy adults for a research study at NIH on the role of our genes in how we perceive taste. One or two study visits are required, each about 30 minutes. Compensation is provided. To learn how you can participate, call the Office of Patient Recruitment at 1-866-444-2214 (TTY 1-866-411-1010). Refer to study 01-DC-0230.



*With the award, Dr. Ariela Vergara-Jaque plans to extend her postdoctoral training in the U.S., attend courses pertaining to computational biology and organize a workshop in Talca to help other bioinformatics engineering students learn some of the cutting-edge techniques she has been exposed to while at NIH.*

PHOTO: L'ORÉAL FOUNDATION

### NINDS's Vergara-Jaque Wins 2015 International Rising Talent Award

By Shannon E. Garnett

Dr. Ariela Vergara-Jaque, an NINDS postdoctoral research fellow and a recipient of the L'Oréal-UNESCO 2013 Women in Science fellowship, now holds another honor. She recently received a second Women in Science award—a 2015 International Rising Talent award—from L'Oréal-UNESCO.

"It is a great honor to be one of the winners of the Women in Science International Rising Talent award," said Vergara-Jaque. "This prize is a credit to my home city in the south of Chile, where I received the solid training in science that enabled me to attain this honor."

The Rising Talents award—part of the L'Oréal-UNESCO for Women in Science

program—promotes scientific excellence and rewards women scientists from around the globe. Vergara-Jaque was identified as one of 15 promising young women researchers from among the 236 Women in Science fellowship winners. The honor seeks to boost the careers of doctoral students and postdoctoral fellows by offering them extra grant support and international visibility. In addition to grants of 15,000 euros each, winners receive special mentorship and training from other top L'Oréal-UNESCO female scientists.

"Already, the 2013 award has made it possible for me to travel to the U.S. and obtain postdoctoral training at NIH," said Vergara-Jaque. "This second award enables me to continue my postdoctoral training and will open doors to me in establishing myself as an independent researcher. Success requires not only strenuous effort and perseverance, but also opportunity, and the latter is what the L'Oréal-UNESCO Women in Science program has given me."

Vergara-Jaque became interested in science in high school, during her first biology and chemistry classes. "Cell division, the human genome and protein folding seemed to me an exciting new world," she said. "I went to the University of Talca—my home university—to ask about the bioinformatics program and saw an amazing moving picture of a protein generated by a computer. You could turn it and examine each part like you were holding it in your hand. This picture has become my daily work."

Vergara-Jaque now works in the NINDS computational structural biology unit directed by Dr. Lucy Forrest, using complex computational tools to study proteins—the building blocks of the human body. Proteins work like tiny machines to keep us alive. Through computer simulations, Vergara-Jaque can observe the virtual proteins from all sides, see their movements in three dimensions and manipulate them according to various hypothetical scenarios to observe how they might behave. Her current focus is on proteins located in cell membranes, whose dysfunction has been implicated in complex neurological disorders.

"These proteins act as gates, allowing certain substances to enter the cells and other substances to leave," she said. "We aim to understand how the proteins rearrange their internal structure to permit or block passage of specific substances. When vital substances are blocked from entering or when substances that should be eliminated are retained, the cells malfunction and cause disease. Our ultimate goal, along with unraveling this complex but important process, is to identify which parts of the protein might be targeted by drugs in order to fight diseases."

## Mullaney Retires After 40+ Years of Service

M. Janis Mullaney retired from NIH—for the second time—on May 31 after more than 40 years in federal service. Most recently, she served as NCATS' associate director for administration (executive officer). At NCATS, she was instrumental in launching and shaping the center's administrative operations and strategy and oversaw virtually every management function including financial and human capital management, acquisitions, information technology, management analysis and ethics. Prior to NCATS, she was in a similar role at NHGRI (2008-2013) after then-NHGRI director Dr. Francis Collins enticed her out of her first federal retirement.

"With her thorough knowledge of NIH and other government agencies and expertise and experiences in business, public-private partnerships and management—not to mention her indefatigably positive and cheerful demeanor—Janis was the first person I sought to help establish NCATS," said NCATS director Dr. Christopher Austin. "Her visionary thinking and skills in strategic management were a crucial asset and she truly has been an indispensable partner and advisor to me."

Throughout her career, Mullaney demonstrated dedication, commitment and passion in supporting and mentoring others and to building connections among her peers and colleagues. She began her federal service in 1971 with the then Bureau of Drugs at the Food and Drug Administration. A promotion lured her to NIH where she served as an administrator from 1981 through 1999 for NIDCR, NINDS and NIDCD in Bethesda and at NIEHS in North Carolina.

In 1999, she returned to Bethesda as intramural management liaison director, working for NIH deputy director for intramural research Dr. Michael Gottesman. She led numerous teams to improve support systems across NIH for the Office of Intramural Research. Prior to her first retirement, Mullaney also served at NCI 2000-2004, first as associate director for management and later as acting deputy director for management. Throughout her years at NIH, she chaired or participated in numerous NIH-wide committees, using her collaborative nature to influence better ways of doing business in support of science.

During her first retirement from the government, Mullaney worked for the Foundation for the NIH

as a senior advisor for public-private partnerships. She was instrumental in developing collaborations between NIH institutes and interested sectors, including other government agencies, industry, academia, foundations, associations and the philanthropic community.

Mullaney looks forward to again living with her husband full-time at the beach in Southport, N.C., and plans to travel.

## NIDCD Mourns Loss of Mundell

Gayle Mundell, 56, passed away on Mar. 2 after a long illness. She was in the National Institute on Deafness and Other Communication Disorders for 15 years, at NIH for nearly 25 years and a federal employee for 40 years. She had retired in January.

As a human resources liaison and ethics program coordinator, Mundell was a well-respected and trusted advisor on ethical issues for the institute and somebody that NIDCD employees sought for answers to questions. In November 2014, NIDCD honored her with the institute's highest award, the NIDCD Award of Excellence, for her years of stellar service.

Tim Wheeles, executive officer of NIDCD, said, "Gayle had such a wonderful spirit and was a vital part of the institute. Everybody loved Gayle, and when she smiled and laughed, it was just infectious. Gayle was one of those staff I could always turn to for her institutional knowledge and her awareness of the people and issues across the institute."

Many coworkers describe Mundell as friendly, caring and easy to talk to. Her positive approach to the day-to-day challenges at work and her joyfulness and happiness in dealing with others were highly valued by her NIDCD family.

During her illness, NIDCD staff participated in bone marrow and stem cell donor registries as a way to help both Mundell and others in her situation.

Craig Jordan, director of NIDCD's Division of Extramural Activities, noted, "I first met Gayle the day I joined NIDCD in 1990. Over the decades she has been a valued colleague and friend, not just to me, but to everyone with whom she interacted. It was Gayle's knowledge and connections to so many people that made her effective in her job; it was her caring, joy and compassion that made her such a memorable colleague."

Mundell was born in Washington, D.C. Beyond NIDCD, she was dedicated to her family and friends. In high school, she worked as a co-op



*M. Janis Mullaney greets NIH director Dr. Francis Collins, who attended her retirement gathering in Wilson Hall.*



student at NIH. Then, while attending American University, she continued to work here. She enjoyed cooking, shopping and rooting for Washington's football team.

She is survived by her husband, Terry Sr.; son, Terry Jr.; daughter, Ashley; three brothers, Gary and Maurice Galloway and Frederick Lockett, Jr.; sister, Kimberly Lockett; two nephews, Jelani and Reginald Galloway; and niece, Jamila Galloway.



*Dr. Richard M. Suzman*

## **NIA's Suzman Dies at 72**

*By Barbara L. Cire*

Dr. Richard M. Suzman, director of the Division of Behavioral and Social Research (BSR) at the National Institute on Aging, died Apr. 16 from complications related to amyotrophic lateral sclerosis. He was 72.

Suzman's ingenuity and determination helped transform the behavioral and social sciences. He made critically important contributions to the science of demography and promoted the development of new subfields, including the demography of disability and the bio-demography of aging.

"On a personal level, Richard Suzman was for me a constant example of what can be accomplished through vision, energy and intellect," said NIA director Dr. Richard Hodes. "He was a tireless advocate for the best in science and for the health of older people and their families. We will remember Richard—both the scientist and the man—with admiration and affection."

A native of South Africa, Suzman joined NIA in 1983 as director of the Office of the Demography of Aging and staff director of the Federal Forum on Aging-Related Statistics, a coordinating organization made up of more than 35 federal agen-

cies. He later served as chief of the Demography and Population Epidemiology Branch before becoming division director in 1998.

"Richard Suzman was a demanding boss, but he was also a supportive and generous mentor and friend with whom we were privileged to work, and we miss him very much," said Georgeanne Patmios, who worked for Suzman for almost 22 years. "BSR staff are grateful we had the opportunity to help Richard continue to work throughout his 14-month struggle with ALS. During this time, Richard remained actively engaged with staff and with the aging research community, mostly working from home."

During his years with the federal government, Suzman brought several new transdisciplinary fields of study to NIA, including neuro-economics, social neuroscience and behavioral genetics. His career changed the understanding of longevity and aging, integrating economic and social behavior with biological and clinical aspects of advancing age.

On Mar. 4, 2014, more than 100 people gathered in Wilson Hall at a reception to honor Suzman's 30 years of distinguished federal service. NIH principal deputy director Dr. Lawrence Tabak said that Suzman was one of the early pioneers who realized that the 85+ population was growing and that it was important to study them. Dr. Norman Anderson of the American Psychological Association remarked that "Richard is the Wayne Gretzky of the behavioral and social sciences...Gretzky didn't skate to where the puck was; he skated to where the puck was going to be. Richard not only does that, he puts the skates on us and pushes us to where advances need to be made."

Perhaps Suzman's key achievement is the U.S. Health and Retirement Study (HRS), which has grown to encompass a group of international surveys that cover more than half the world's population. These related surveys allow researchers to compare data on aging cross-nationally, demonstrating how both common and unique biological, cultural, institutional and policy features can affect health and well-being with age.

Suzman's relentless insistence that the HRS reach out to multiple disciplines, incorporate new ways of thinking and adopt innovative technologies and methodologies has led to new and deeper insights into the ways people age across the globe. Some of these innovations include using biomarkers and genetic measures, promoting the public release of harmonized data from HRS sister studies around the world and providing data on Alzheimer's disease prevalence and its effect on caregivers and society. Suzman's loss will not only be felt in the United States, but also internationally.

Suzman also led development of important trans-NIH initiatives. The Common Fund's interests in the science of behavior change and in health economics are already making a difference, through studies of new ways to intervene in health behaviors, including tobacco use, diabetes management and the dissemination of and adherence to medical regimens. His understanding of how economics can affect health and aging has already changed trajectories for participation in pension savings in the U.S., for the benefit of today's older Americans and generations to come.

Before his tenure at NIA, Suzman served on the faculty of the University of California, San Francisco, School of Medicine and was a postdoctoral fellow at Stanford University, where he also served briefly on the faculty. After attending the University of the Witwatersrand, he received his undergraduate and graduate degrees from Harvard University and a diploma of social anthropology from Oxford University.

He is survived by his wife, Janice Krupnick; children Daniel and Jessica; and brothers David, Stephen and Peter. ☛

## Chinese Delegation Visits NIH, Tours Bldg. 10

A high-ranking delegation from China visited NIH on June 24 for the signing of a 5-year renewal of a memorandum of understanding on emerging and re-emerging infectious diseases. The MOU commits both nations to a plan of action to guide cooperation on global health security.

HHS Secretary Sylvia Burwell and NIH director Dr. Francis Collins welcomed the delegation to Bldg. 1, whose Wilson Hall hosted a series of remarks and the MOU signing before the Chinese delegation dropped by Bldg. 10 for a tour of facilities including Dr. Diane Damiano's movement analysis laboratory.

Chinese Vice Premier Liu Yandong and Commissioner Minister Li Bin of China's National Health and Family Planning Commission spoke about the U.S.-China partnership, highlighting responses to global health challenges such as the H7N9 influenza and Ebola outbreaks. Also on hand was Wang Yu, director of the Chinese Center for Disease Control, who participated in a 3-hour symposium on Ebola, research and other global health matters. NIAID director Dr. Anthony Fauci described the U.S. research response to the Ebola crisis.

"The U.S. and China were two of the first countries to respond to the recent Ebola outbreak," noted Jimmy Kolker, HHS assistant secretary for global affairs, who moderated the event in Wilson Hall.

To prepare for future outbreaks, both countries expressed their commitment to the Global Health Security Agenda in building systems to prevent, detect and respond to infectious disease threats in support of the International Health Regulations, Kolker added.

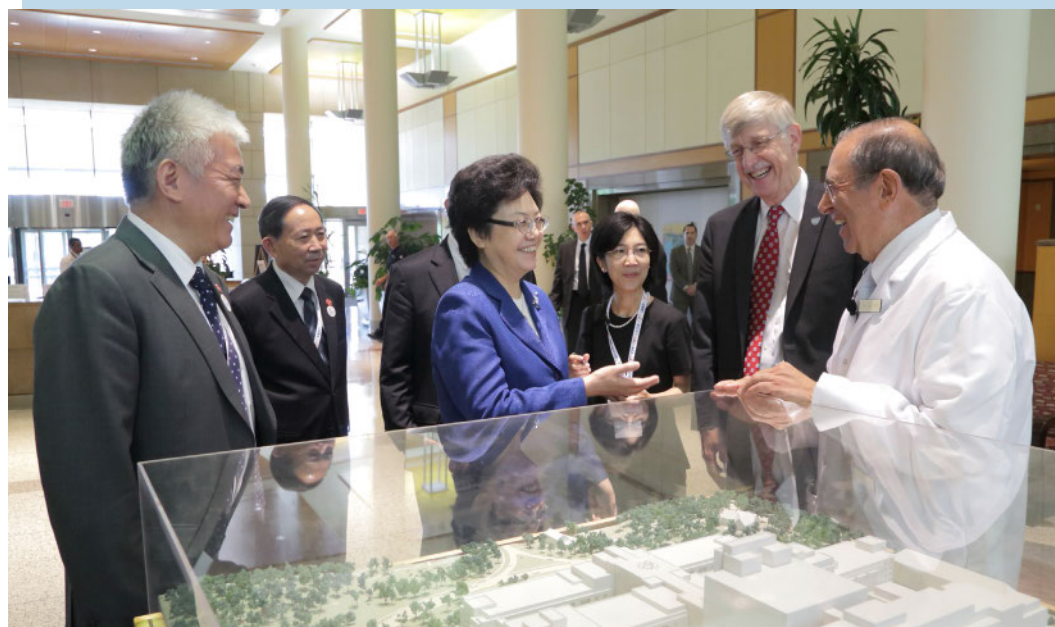


*HHS Secretary Sylvia Burwell (l) and NIH director Dr. Francis Collins (r) welcome (from l) Minister Li Bin and Vice Premier Liu Yandong of China on June 24. The Chinese delegation attended a morning symposium on global health and later toured the Clinical Research Center.*

PHOTOS: ERNIE BRANSON



*Secretary Burwell and Minister Li renew an MOU for the next 5 years on emerging and re-emerging infectious diseases, committing to a plan of action to guide cooperation on global health security.*



*Collins and CC director Dr. John Gallin (r) introduce the Chinese delegation to Bldg. 10.*